

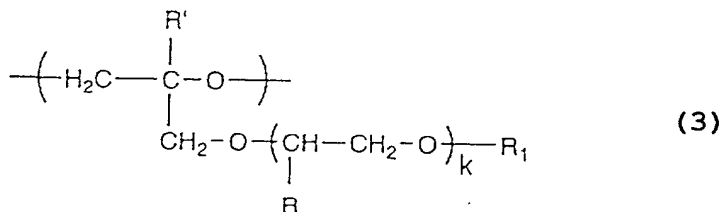
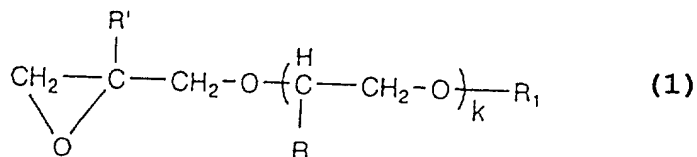
WHAT IS CLAIMED IS:

1. A porous film comprising a resin composition which comprises from 70 to 99.9% by weight of a high molecular weight polyolefin resin and from 0.1 to 30% by weight of a polymer having a polyacrylate, polymethacrylate, poly(ethylene oxide), poly(propylene oxide), poly(ethylene propylene oxide), polyphosphazene, poly(vinyl ether) or polysiloxane structure as or in a main chain and having a chain oligo(alkylene oxide) structure in side chains.

2. The porous film of claim 1, wherein the high molecular weight polyolefin resin comprises at least 30% by weight of a ultrahigh molecular weight polyolefin resin having a weight average molecular weight of 1.0×10^6 or higher.

3. The porous film of claim 1, wherein the polymer is a polyether having a poly(ethylene oxide), poly(propylene oxide) or poly(ethylene propylene oxide) structure as or in a main chain and having a chain oligo(alkylene oxide) structure in side chains.

4. The porous film of claim 1, wherein the polymer is an ether multicomponent polymer having a weight average molecular weight in the range of from 10^4 to 10^7 formed from monomer components comprising from 1 to 99% by mole of a component represented by the following formula (1) and from 99 to 1% by mole of a component represented by the following formula (2), the repeating structural units derived from the two components being represented by the following formulae (3) and (4):



wherein in formulae (1) and (3), R and R' each independently represent a hydrogen atom or a methyl group, R₁ represents a group selected from the group consisting of an alkyl group having 1 to 12 carbon atoms, an alkenyl group having 2 to 8 carbon atoms, a cycloalkyl group having 3 to 8 carbon atoms, an aryl group having 6 to 14 carbon atoms, and an aralkyl group having 7 to 12 carbon atoms, and k, indicating the degree of polymerization of the oxyalkylene unit constituting a side chain part, is from 1 to 12; and in formulae (2) and (4), R' represents a hydrogen atom or a methyl group.

5. A process for producing a porous film which

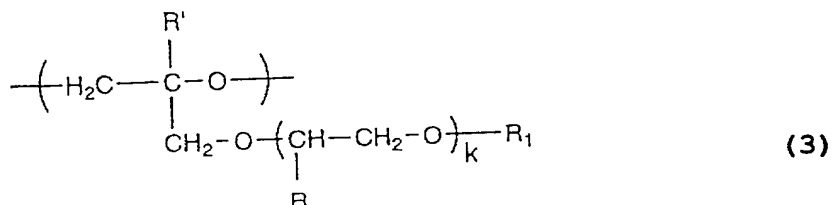
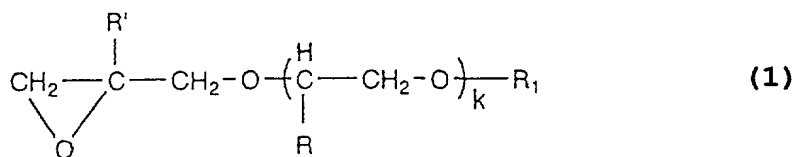
comprises: heating and kneading in a solvent from 70 to 99.9% by weight of a high molecular weight polyolefin resin and from 0.1 to 30% by weight of a polymer having a polyacrylate, polymethacrylate, poly(ethylene oxide), poly(propylene oxide), poly(ethylene propylene oxide), polyphosphazene, poly(vinyl ether) or polysiloxane structure as or in a main chain and having a chain oligo(alkylene oxide) structure in side chains to thereby obtain a kneaded product; forming the kneaded product into a gel-state sheet; rolling and/or stretching the sheet; and then subjecting the sheet to a solvent-removing treatment.

6. The process for producing a porous film of claim 5, wherein the high molecular weight polyolefin resin comprises at least 30% by weight of an ultrahigh molecular weight polyolefin resin having a weight average molecular weight of 1.0×10^6 or higher.

7. The process for producing a porous film of claim 5, wherein the polymer is a polyether having a poly(ethylene oxide), poly(propylene oxide) or poly(ethylene propylene oxide) structure as or in a main chain and having a chain oligo(alkylene oxide) structure in side chains.

8. The process for producing a porous film of claim 5, wherein the polymer is an ether multicomponent polymer having a weight average molecular weight in the range of from 10^4 to 10^7 formed from monomer components comprising from 1 to 99% by mole of a component represented by the following formula (1) and from 99 to 1% by mole of a component represented by the following formula (2), the repeating structural units derived

from the two components being represented by the following formulae (3) and (4):



wherein in formulae (1) and (3), R and R' each independently represent a hydrogen atom or a methyl group, R₁ represents a group selected from the group consisting of an alkyl group having 1 to 12 carbon atoms, an alkenyl group having 2 to 8 carbon atoms, a cycloalkyl group having 3 to 8 carbon atoms, an aryl group having 6 to 14 carbon atoms, and an aralkyl group having 7 to 12 carbon atoms, and k, indicating the degree of polymerization of the oxyalkylene unit constituting a side chain part, is from 1 to 12; and in formulae (2) and (4), R' represents a hydrogen atom or a methyl group.

9. The process for producing a porous film of claim 5, wherein the rolling and/or stretching is conducted so as to result in an overall stretch ratio of 25 or more.

10. A separator comprising the porous film of claim 1.

11. A battery employing the separator of claim 10.

12. A capacitor employing the separator of claim 10.

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